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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,195	07/08/2003	Yuzo Hirayama	04329.3091	6325

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EXAMINER

MOON, SEOKYUN

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,195

Applicant(s)

HIRAYAMA ET AL.

Examiner

Seokyun Moon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/03&7/05&10/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements (IDS) filed on July 08, 2003, July 20, 2005, and October 28, 2005 have been acknowledged and considered by the examiner. The Initial copies of form PTO-1449 are included in this office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 3, 5, 7, 8, 9, 11, 13, 15, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki (JP. Pub. No. 07-248467, herein after referred to as "Masayuki") in view of Yuji (JP. Pub. No. 08-101367, herein after referred to as "Yuji").

As to **claim 1**, Masayuki [drawing 4] teaches a 3D image reproduction apparatus comprising:

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a display ("*flat panel display 7*") including a screen on which a plurality of pixels is arranged to display synthesis parallax images [par. (0050)] in units of arrayed sub regions (each of regions 1, 2, 3, 4, and 5 shown in drawing 8) [par. (0040)], wherein each of the pixels includes a plurality of color filters that differ in color; and

an optical system ("*slit plate 8*") arranged in front of the screen of the display ("*flat panel display 7*") [par. (0049)], forming a 3D image [par. (0054)] from synthesis parallax images displayed on the screen in units of arrayed sub regions.

The modified Masayuki does not teach each of the pixels to include the sub pixels having different colors being laid out so that adjacent sub pixels differ in color.

However, Yuji [drawing 2] teaches a three-dimensional image generating device comprising pixels having a layout of sub pixels arranging each of sub pixels having different colors to be adjacent to each other rather than arranging each of sub pixels having same colors to be adjacent to each other [par. (0020)].

It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt Yuji's arrangement for sub pixels in Masayuki, in order to prevent image degradation which is caused when two dark sub pixels having same color such as blue sub pixels are laid adjacent to each other.

As to **claim 3**, Masayuki [drawing 4] teaches the synthesis parallax images to comprise images synthesized (an image on the screen is formed with plural images transmitted from each of the arrayed sub regions) from a plurality

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of parallax images (different shapes of an image are viewed depending on observation position) in units of the sub pixels [par. (0051)].

As to **claim 5**, Masayuki [drawing 4] teaches the optical system ("*slit plate 8*") to comprise a slit array in which slits are arranged corresponding to the arrayed sub regions (each of regions 1, 2, 3, 4, and 5 shown in drawing 8) [par. (0049)].

As to **claim 7**, Masayuki [drawing 9] teaches the optical system to comprise a lenticular sheet ("*lenticular lens 12*") in which lenses are arranged corresponding to the arrayed sub regions [pars (0055) and (0056)].

As to **claim 8**, Masayuki modified by Yuji teaches sub pixels of the same color to be laid out in a V-shaped pattern [Figure. 1 provided below which is equivalent to drawing 2 included in Masayuki].

As to **claim 9**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the sub pixels having respectively rectangles to extend in a substantially vertical direction of the screen.

Masayuki as modified by Yuji [Yuji: drawing 2] teaches the sub pixels having respectively rectangles to extend in a substantially vertical direction of the screen.

As to **claim 11**, all of the claim limitations have already been discussed with respect to the rejection of claim 3.

As to **claim 13**, all of the claim limitations have already been discussed with respect to the rejection of claim 5.

As to **claim 15**, all of the claim limitations have already been discussed with respect to the rejection of claim 7.

As to **claim 16**, all of the claim limitations have already been discussed with respect to the rejection of claim 8.

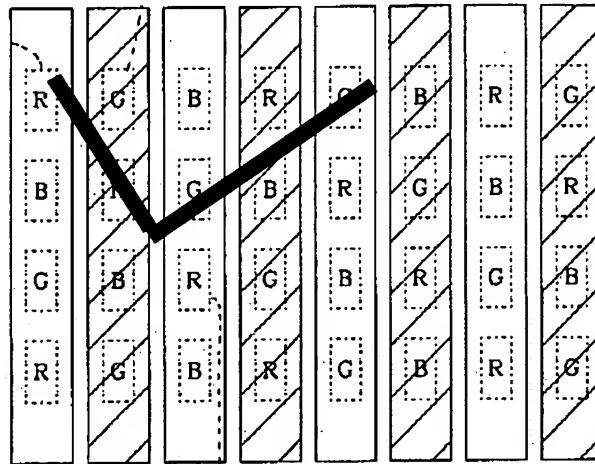


Figure 1

5. **Claims 2 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki and Yuji as applied to claim 1 above, and further in view of Travis (US. Pat. No. 5,132,839, herein after referred to as "Travis").

As to **claim 2**, Masayuki as modified by Yuji does not teach the synthesis parallax images to comprise images ray-traced in units of the sub pixels.

However, Travis teaches a three-dimensional display device comprising a backlighting apparatus including a two-dimensional display device, and adopting ray-tracing method to generate a three dimensional image.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace Masayuki's camera for inputting 3D information with Travis' backlight apparatus in order to remove the need of special camera for

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inputting 3D information and thus to simplify the structure of the display device and to adopt Travis' ray-tracing method to provide various different views from the single illumination depending on observation location [col. 6 lines 30–47].

As to **claim 10**, all of the claim limitations have already been discussed with respect to the rejection of claim 2.

6. **Claims 4, 6, 12, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki and Yuji as applied to claims 1, 5, 7, and 8 above, and further in view of Kobayashi (US. Pub. No. 2004/0001139 A1, herein after - referred to as "Kobayashi").

As to **claims 4 and 6**, Masayuki does not disclose the optical system to comprise a pinhole array or a micro lens array in which pinholes of the pinhole array or the micro lenses of micro lens array are arranged corresponding to the arrayed sub regions.

However, Kobayashi teaches a three-dimensional image display system utilizing micro lens array and a pinhole array for display's optical means.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace Masayuki's slit array or lenticular array with one of a micro lens array and a pinhole array, as taught by Kobayashi, in order to achieve appearance of solidity in the vertical and lateral directions [pars. (0068) and (0070)].

As to **claim 12**, all of the claim limitations have already been discussed with respect to the rejection of claim 4.

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As to **claim 14**, all of the claim limitations have already been discussed with respect to the rejection of claim 6.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thomas et al. (US. Pub. No. 2001/0048507) teaches a method and a display for processing 3D images without the need for multiple cameras or the highly computer intensive processing associated with generation of simulated camera images.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

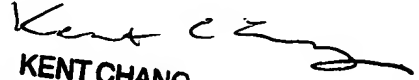
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 20, 2006

S.M.


KENT CHANG
PRIMARY EXAMINER